

NOTE ON THE POLYMORPHISM OF  
*TRYPANOSOMA GAMBIENSE*.

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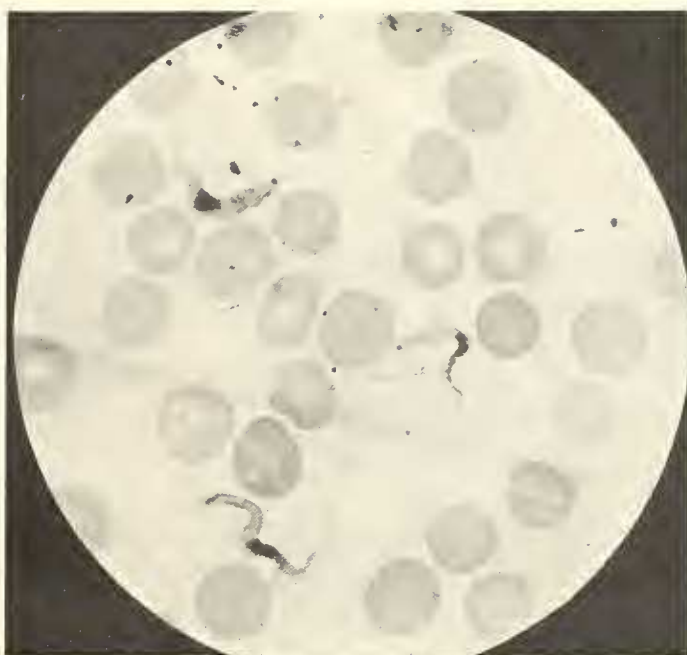
Plate XVII.

IN a memoir recently published, Salvin-Moore and Breinl<sup>1</sup> state that when *Trypanosoma gambiense* is examined in the blood "it does not seem possible to detect any true dimorphism or trimorphism." "The three forms often described and alluded to as distinct, consequently appear to be arbitrarily chosen examples in a continuous series of dimensions." It has always seemed to me very remarkable that the great differences in form and structure, no less than in size, between the slender, ordinary, and stumpy forms of *T. gambiense*, differences noted by all competent observers, should have been denied by two authors who claim for their methods of technique a superiority over those employed by all other investigators.

In a preparation of *T. gambiense* from the blood of a rat, which was made by my friend and assistant Dr J. D. Thomson for the cabinet of the Protozoological Laboratory of the Lister Institute, the three typical forms of the trypanosome were found to be very distinctly differentiated. Dr Thomson found and marked two fields in which the three forms occurred in close proximity, so that it was possible to photograph them. The blood-smear was fixed wet with osmic vapour, stained with Giemsa's stain, and mounted in Canada balsam. The two photographs which are reproduced here were taken at a magnification of 1000 diameters by my friend Dr D. J. Reid.

It can be seen clearly from the photographs that the difference between the three forms of *T. gambiense* is by no means one merely of size. The slender form is of great length and has a very long free flagellum. On the other hand the stumpy form is short and its

<sup>1</sup> *Annals of Tropical Medicine and Parasitology*, I. (1907), pp. 450, 451; compare also II. (1908), p. 212.



flagellum is also very short, especially the free portion. The ordinary form, which is much the commonest on the slide, is more or less intermediate between the two extreme forms. There is nothing new in these statements, and it seems almost necessary to apologize for restating such obvious facts; it is to be hoped that it will not be necessary to do so again.

As regards the significance of these forms, I incline to the opinion that the two extremes, slender and stumpy, represent sexual forms differentiated in opposite directions from a neutral type. This view receives support from the observation made by me, that after about 12 hours in the tsetse-fly only slender and stout forms are to be found. Nevertheless the question of the meaning of this well-marked trimorphism cannot be regarded as definitely settled in the present state of our knowledge.